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Hydrology Report

Upper Little Deschutes Restoration Project

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Klamath County, CA

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Hydrology Report- Draft

Introduction

The Upper Little Deschutes Restoration project consists of two separate areas along the Little Deschutes River that are separated by private land. It includes the northern portion (also known as Odell Pasture), and the southern area. The northern area is surrounded by private lands and Forest Service access is off County road 61 (also known as Crescent Cut-off road). The southern portion is adjacent to Highway 58 and partially bordered on the east side by private lands. Forest Service road 6125 (Gullick road) traverses through this portion and the western edge of the northern portion of the project area. Both areas are heavily utilized by the local population for fishing, hunting, recreation, and access to private lands adjacent to Forest Service lands. Project will restore hydrology along the Little Deschutes River by eliminating illegal ditch, adding additional structure to stream, rehabilitation of dispersed recreation sites with the potential to harm water quality and creating a sustainable transportation system.

Purpose and Need

The purpose of this project is restoration related: 1) maintaining or restoring the existing values and ecosystem services that a riparian environment provides through improving the hydrological function of the Little Deschutes River to benefit the unique habitats found within or adjacent to the river. 2) Maintaining or enhancing recreational experiences, with a sustainable road system that provides access while increasing wildlife security and reduces sedimentation to the river.

There is a need for an integrated approach to management and Ecosystem Services are most simply defined by the 2005 Millennium Ecosystem Assessment as “the benefits people obtain from ecosystems.”

The purpose provides for the need for action that are inter-related to the purposes of the project.

1. *There is a need to restore the unique habitats along or within the Upper Little Deschutes River. This includes meadows, fens, fish spawning habitat, and Oregon spotted frog habitat by reconnecting the relic oxbows¹ back into the current hydrologic system.*
2. *There is a need to enhance sustainable recreational through removal of resource damaging dumpsites, remove dispersed sites that are degrading water quality, restore riparian areas adjacent to campsites that have overuse and decommission dispersed sites that lead to resource damage.*
3. *There is a need to provide a sustainable transportation system to accommodate public access throughout the planning area while increasing wildlife security and reducing the resource damage, vegetation removal, and sedimentation into the river.*

The Little Deschutes River, in both sections, has areas where bank instability is occurring creating areas where there is sparse or no vegetation and eroding cut banks which slough into the river contributing sedimentation to the river. There is vehicle use and multiple unauthorized

¹ Oxbow: a U-shaped body of water that is an old stream channel that was originally a bend in the river but became separated when the river took a new, straighter course. Also known as an oxbow lake or meander cut-off.

routes throughout and along the river which are redundant and are also contributing sediment to the river, damaging vegetation, and removing vegetation along the banks of the river. There are unauthorized structures [channel diversion and bridge over the river (Figures 4 and 5)] that would be removed and the channel restructured back into the river.

One of the goals of the Upper Little Deschutes Restoration project is to reduce the amount of roads but still provide access to the frequently used areas for swimming and fishing. Forest Service roads could be opened, or closed, to provide a more sustainable transportation system. This includes creating a Maintenance Level II (ML 2) road for high clearance vehicles and ATVs to connect the 6100100 road to access the 6125 road (Gulick) through Forest Service lands. This would be accomplished utilizing existing old roadbeds/decommissioned roads. On the 6125's southern end there would be five turnouts created for winter snow plowing snow storage.

The majority of the restoration work will be focused on repairing riparian damage, reconnecting oxbows, adding large wood structures (log jam) to reconnect the river with side channels (relic oxbow), creating additional habitat for Oregon spotted frog, improving aquatic habitat for fish, removing some of the encroaching lodgepole to help move the meadow back to an early seral stage, and redefining the transportation system to a sustainable level on the landscape. This will include, but not limited to, ripping excess and/or unclassified roads, redirecting the diversion to the pond and back into the river, filling in the remaining diversion ditch from the pond access to the private land, removing unauthorized structures, bouldering to prevent driving access to meadows, planting native riparian vegetation along restored areas, transplanting willows etc.

Proposed Action

For more details, see Chapter 2 of the EA.

Riparian enhancement and restoration would include the enhancement of habitat for Oregon spotted frogs and various trout species through the installation of instream structures consisting of single to multiple logs and/or beaver dam analog structures that would be constructed of smaller logs that would span the river and reconnecting diverted water to the river. Also included would be enhancement of riparian and aspen habitats through the removal of encroaching lodgepole pine, removing unauthorized bridge type structures and redefining or decommissioning dispersed recreation sites.

Actions would include the following:

1. Instream work by excavator: placement of tree structures, reshaping connections to side channels. Project work would be at select sites along nearly 10 miles (16 km) of stream channel.
 - a. Trees would be tipped over with an excavator and moved to the placement site. Lodgepole pine trees encroaching on the meadow with 300 feet of the river would also be a source for instream multi-log structures and/or beaver dam analogs.
 - b. Reshaping and/or closing an unauthorized water diversion. The upstream portion of the ditch would be contoured to increase residence time and hold water through a series of connected ponds to a point where it would be connected to the log pond and then back to the river. The remaining portion past where it was diverted to the log pond would be filled in and rehabilitated with native vegetation.

2. Removal of the unauthorized bridge over the Upper Little Deschutes River would include bank recontouring, reclaiming the gravel, and rehabilitation of the stream banks.
 - a. Rehabilitation of this area would consist of transplant/planting of native sedges, rushes, and willows etc.
3. Removing encroaching lodgepole pine along the edges of the stringer meadows to maintain the meadow habitat approximately 224 acres.
 - a. Fuels treatments would include: lop and scatter and/or piling where concentrations are heavy. Piles may be burned, or left for wildlife.
4. Redefining/rehabilitating dispersed campsites to reduce the impacts to the river and riparian areas from creep², erosion, and sedimentation. See sustainable recreation for action details.

Management Guidance

Management of this project, as it relates to aquatic function, is directed by the Inland Native Fish Strategy (INFISH 1995), the Deschutes Land and Resource Management Plan (USFS 1990), the Clean Water Act (1972), 2010-2013 Deschutes and Ochoco Programmatic Biological Assessment and Executive Orders 11988, 11990, and 12088. Additional scientific guidance and background information is available within various watershed analyses and the National Best Management Practices for Water Quality Management (USFS 2012). See aquatics specialist report for management guidance discussion and compliance.

Affected Environment

The project lies with six 6th field watersheds, but only two are within the project area where in-stream work will occur; Gilchrist Junction-Little Deschutes River (170703020105) and a very small portion of Town of Gilchrist-Little Deschutes River (170703020106) Project will forest of two tracks of land. (See EA for detailed maps)

Little Deschutes River originates out of the Mount Thielsen Wilderness, with the first 12 miles are designated as Wild and Scenic. From there the gradient drops significantly into a meandering stream flowing through the subdivision of Two Rivers and under highway 59 into the project area between highway 58 and Crescent Cut-Off road.

Environmental Consequences

Direct and Indirect Effects

Alternative 1 (No Action)

Under Alternative A, the existing channel would stay in its current condition with reduced complexity and limited potential habitat. The ditch on the North end of the project will continue to divert water out of natural channel and reduce water quality. Roads both authorized and user

created in close proximity to riparian area will continue to cause erosion and sedimentation into the Little Deschutes River. Dispersed sites and user created trail and bridges will also continue to be a chronic source of sediment and reduced water quality.

Alternative 2 (Proposed Action)

Effects for Alternative 2 are assuming the implementation of Best Management Practices (BMPs) and Project Design Features (PDFs) refer to the Aquatics/Fisheries and Roads Specialist Reports.

Instream Work- Instream channel work including additions of large tree structures and reshaping channel connection has the potential to cause sediment to enter the Little Deschutes River. See Aquatics/Fisheries Specialist report for full effects description.

Unauthorized Bridge Removal- The removal of this user crated bridge will result in less sediment entering the Little Deschutes River directly adjacent to the bridge. The removal and restoration of the site will also result in loss of access to user created road and trails further improving water quality. There is potential for sediment to enter the river during the process of removing the bridge and restoring the banks however any sediment is expected to be minimal and only present during the time of construction.

Removal of Lodgepole Encroachment- Removal of encroaching lodgepole pine will help to release hardwoods in the riparian areas. This had the potential to increase stream temperatures due to decreased shading but will ultimately result in increased shading as a result of increased riparian species.

Redefining/rehabilitating dispersed campsites-This activity will limit the increasing size of dispersed recreation sites. Activity will reduce erosion/ sedimentation into Little Deschutes River.

Sustainable road system- By creating a sustainable road network within the Upper Little Deschutes Restoration project area will allow for reestablishing vegetation and initiating restoration of ecological processes interrupted or adversely impacted by current road system. Implementation of isn't expected to cause erosion of sedimentation.

Overall the Upper Little Deschutes Restoration Project will enhance riverine habitat and create a more diverse and robust riparian area along the Little Deschutes River.

Compliance with law, regulation, policy, and the Forest Plan

See Aquatics/ Fisheries Report

References

USFS (USDA Forest Service). 1990. Land and Resource Management Plan, Deschutes National Forest. Bend, Oregon.

USFS (USDA Forest Service) and USDI Bureau of Land Management. 1995. Environmental Assessment, Decision Notice and Finding of No Significant Impact for the Inland Native Fish Strategy (INFISH).

USFS (USDA Forest Service) and USDI Bureau of Land Management. 2010-2013. Joint aquatic and terrestrial programmatic biological assessment for lands within the Deschutes Basin administered by the Bureau of Land Management Prineville Office and the Deschutes and Ochoco National Forests

USFS (USDA Forest Service). 2012. National Best Management Practices for Water Quality Management on National Forest System Lands. FS-990a.